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#20

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/09/381,286A

DATE: 01/09/2003  
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3 <110> APPLICANT: GROLL, MICHAEL
4      HUBER, ROBERT
5      DITZEH, LARS
6      ENGH, RICHARD
8 <120> TITLE OF INVENTION: PROCESS FOR THE PURIFICATION AND CRYSTALLIZATION OF
9      PROTEASOME
11 <130> FILE REFERENCE: 100564-09039
13 <140> CURRENT APPLICATION NUMBER: 09/381,286A
C--> 14 <141> CURRENT FILING DATE: 1999-12-17
16 <150> PRIOR APPLICATION NUMBER: PCT/EP98/01653
17 <151> PRIOR FILING DATE: 1998-03-20
19 <150> PRIOR APPLICATION NUMBER: EPO 97104877.2
20 <151> PRIOR FILING DATE: 1997-03-21
22 <160> NUMBER OF SEQ ID NOS: 14
24 <170> SOFTWARE: PatentIn Ver. 2.1
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27 <211> LENGTH: 203
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29 <213> ORGANISM: Thermoplasma acidophilum
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38 Lys Leu Phe Gln Ile Asp Thr Tyr Thr Gly Met Thr Ile Ala Gly Leu
39      35          40          45
41 Val Gly Asp Ala Gln Val Leu Val Arg Tyr Met Lys Ala Glu Leu Glu
42      50          55          60
44 Leu Tyr Arg Leu Gln Arg Arg Val Asn Met Pro Ile Glu Ala Val Ala
45      65          70          75          80
47 Thr Leu Leu Ser Asn Met Leu Asn Gln Val Lys Tyr Met Pro Tyr Met
48      85          90          95
50 Val Gln Leu Leu Val Gly Gly Ile Asp Thr Ala Pro His Val Phe Ser
51      100         105         110
53 Ile Asp Ala Ala Gly Gly Ser Val Glu Asp Ile Tyr Ala Ser Thr Gly
54      115         120         125
56 Ser Gly Ser Pro Phe Val Tyr Gly Val Leu Glu Ser Gln Tyr Ser Glu
57      130         135         140
59 Lys Met Thr Val Asp Glu Gly Val Asp Leu Val Ile Arg Ala Ile Ser
60      145         150         155          160
62 Ala Ala Lys Gln Arg Asp Ser Ala Ser Gly Gly Met Ile Asp Val Ala
63      165         170         175
65 Val Ile Thr Arg Lys Asp Gly Tyr Val Gln Leu Pro Thr Asp Gln Ile

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 69 195 200  
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 81 Gly Lys Asp Cys Val Ala Ile Ala Cys Asp Leu Arg Leu Gly Ser Gln  
 82 20 25 30  
 84 Ser Leu Gly Val Ser Asn Lys Phe Glu Lys Ile Phe His Tyr Gly His  
 85 35 40 45  
 87 Val Phe Leu Gly Ile Thr Gly Leu Ala Thr Asp Val Thr Thr Leu Asn  
 88 50 55 60  
 90 Glu Met Phe Arg Tyr Lys Thr Asn Leu Tyr Lys Leu Lys Glu Glu Arg  
 91 65 70 75 80  
 93 Ala Ile Glu Pro Glu Thr Phe Thr Gln Leu Val Ser Ser Ser Leu Tyr  
 94 85 90 95  
 96 Glu Arg Arg Phe Gly Pro Tyr Phe Val Gly Pro Val Val Ala Gly Ile  
 97 100 105 110  
 99 Asn Ser Lys Ser Gly Lys Pro Phe Ile Ala Gly Phe Asp Leu Ile Gly  
 100 115 120 125  
 102 Cys Ile Asp Glu Ala Lys Asp Phe Ile Val Ser Gly Thr Ala Ser Asp  
 103 130 135 140  
 105 Gln Leu Phe Gly Met Cys Glu Ser Leu Tyr Glu Pro Asn Leu Glu Pro  
 106 145 150 155 160  
 108 Glu Asp Leu Phe Glu Thr Ile Ser Gln Ala Leu Leu Asn Ala Ala Asp  
 109 165 170 175  
 111 Arg Asp Ala Leu Ser Gly Trp Gly Ala Val Val Tyr Ile Ile Lys Lys  
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 119 <211> LENGTH: 198  
 120 <212> TYPE: PRT  
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 128 20 25 30  
 130 Asp Lys Thr Arg Gln Leu Ser Pro His Thr Leu Met Ser Phe Ala Gly  
 131 35 40 45  
 133 Glu Ala Gly Asp Thr Val Gln Phe Ala Glu Tyr Ile Gln Ala Asn Ile  
 134 50 55 60  
 136 Gln Leu Tyr Ser Ile Arg Glu Asp Tyr Glu Leu Ser Pro Gln Ala Val  
 137 65 70 75 80

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139 Ser Ser Phe Val Arg Gln Glu Leu Ala Lys Ser Ile Arg Ser Arg Arg  
 140 85 90 95  
 142 Pro Tyr Gln Val Asn Val Leu Ile Gly Gly Tyr Asp Lys Lys Lys Asn  
 143 100 105 110  
 145 Lys Pro Glu Leu Tyr Gln Ile Asp Tyr Leu Gly Thr Lys Val Glu Leu  
 146 115 120 125  
 148 Pro Tyr Gly Ala His Gly Tyr Ser Gly Phe Tyr Thr Phe Ser Leu Leu  
 149 130 135 140  
 151 Asp His His Tyr Arg Pro Asp Met Thr Thr Glu Glu Gly Leu Asp Leu  
 152 145 150 155 160  
 154 Leu Lys Leu Cys Val Gln Glu Leu Glu Lys Arg Met Pro Met Asp Phe  
 155 165 170 175  
 157 Lys Gly Val Ile Val Lys Ile Val Asp Lys Asp Gly Ile Arg Gln Val  
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 174 20 25 30  
 176 Tyr Ser Ile Asn Ser Arg Tyr Glu Pro Lys Val Phe Asp Cys Gly Asp  
 177 35 40 45  
 179 Asn Ile Val Met Ser Ala Asn Gly Phe Ala Ala Asp Gly Asp Ala Leu  
 180 50 55 60  
 182 Val Lys Arg Phe Lys Asn Ser Val Lys Trp Tyr His Phe Asp His Asn  
 183 65 70 75 80  
 185 Asp Lys Lys Leu Ser Ile Asn Ser Ala Ala Arg Asn Ile Gln His Leu  
 186 85 90 95  
 188 Leu Tyr Gly Lys Arg Phe Phe Pro Tyr Tyr Val His Thr Ile Ile Ala  
 189 100 105 110  
 191 Gly Leu Asp Glu Asp Gly Lys Gly Ala Val Tyr Ser Phe Asp Pro Val  
 192 115 120 125  
 194 Gly Ser Tyr Glu Arg Glu Gln Cys Arg Ala Gly Gly Ala Ala Ala Ser  
 195 130 135 140  
 197 Leu Ile Met Pro Phe Leu Asp Asn Gln Val Asn Phe Lys Asn Gln Tyr  
 198 145 150 155 160  
 200 Glu Pro Gly Thr Asn Gly Lys Val Lys Lys Pro Leu Lys Tyr Leu Ser  
 201 165 170 175  
 203 Val Glu Glu Val Ile Lys Leu Val Arg Asp Ser Phe Thr Ser Ala Thr  
 204 180 185 190  
 206 Glu Arg His Ile Gln Val Gly Asp Gly Leu Glu Ile Leu Ile Val Thr  
 207 195 200 205  
 209 Lys Asp Gly Val Arg Lys Glu Phe Tyr Glu Leu Lys Arg Asp  
 210 210 215 220

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216 <213> ORGANISM: *Saccharomyces cerevisiae*  
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225 Leu Leu Arg Phe Asn Gly Val Glu Arg Leu Ile Pro Val Gly Asp Asn  
226 35 40 45  
228 Thr Val Val Gly Ile Ser Gly Asp Ile Ser Asp Met Gln His Ile Glu  
229 50 55 60  
231 Arg Leu Leu Lys Asp Leu Val Thr Glu Asn Ala Tyr Asp Asn Pro Leu  
232 65 70 75 80  
234 Ala Asp Ala Glu Glu Ala Leu Glu Pro Ser Tyr Ile Phe Glu Tyr Leu  
235 85 90 95  
237 Ala Thr Val Met Tyr Gln Arg Arg Ser Lys Met Asn Pro Leu Trp Asn  
238 100 105 110  
240 Ala Ile Ile Val Ala Gly Val Gln Ser Asn Gly Asp Gln Phe Leu Arg  
241 115 120 125  
243 Tyr Val Asn Leu Leu Gly Val Thr Tyr Ser Ser Pro Thr Leu Ala Thr  
244 130 135 140  
246 Gly Phe Gly Ala His Met Ala Asn Pro Leu Leu Arg Lys Val Val Asp  
247 145 150 155 160  
249 Arg Glu Ser Asp Ile Pro Lys Thr Thr Val Gln Val Ala Glu Glu Ala  
250 165 170 175  
252 Ile Val Asn Ala Met Arg Val Leu Tyr Tyr Arg Asp Ala Arg Ser Ser  
253 180 185 190  
255 Arg Asn Phe Ser Leu Ala Ile Ile Asp Lys Asn Thr Gly Leu Thr Phe  
256 195 200 205  
258 Lys Lys Asn Leu Gln Val Glu Asn Met Lys Trp Asp Phe Ala Lys Asp  
259 210 215 220  
261 Ile Lys Gly Tyr Gly Thr Gln Lys Ile  
262 225 230  
265 <210> SEQ ID NO: 6  
266 <211> LENGTH: 232  
267 <212> TYPE: PRT  
268 <213> ORGANISM: *Saccharomyces cerevisiae*  
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275 20 25 30  
277 Lys Leu His Arg Ile Ser Pro Lys Ile Trp Cys Ala Gly Ala Gly Thr  
278 35 40 45  
280 Ala Ala Asp Thr Glu Ala Val Thr Gln Leu Ile Gly Ser Asn Ile Glu  
281 50 55 60  
283 Leu His Ser Leu Tyr Thr Ser Arg Glu Pro Arg Val Val Ser Ala Leu

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287																95								
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290																110								
292	Ile	His	Ala	His	Gly	Ser	Thr	Asp	Val	Gly	Tyr	Tyr	Leu	Ser	Leu	Gly								
293																125								
295	Ser	Gly	Ser	Leu	Ala	Ala	Met	Ala	Val	Leu	Glu	Ser	His	Trp	Lys	Gln								
296																140								
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301	145	150									155													
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305	165									170														
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311																205								
313	195	200																						
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332										50			55			60								
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339										100			105			110								
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343										130			135			140								
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345										145			150			155								
346	Ala	Gly	Ile	Leu	Gly	Asp	Leu	Gly	Ser	Gly	Gly	Asn	Val	Asp	Ala	Cys								
347										165			170			175								
348	349	350	351	352	353	354	355	356	Val	Ile	Thr	Lys	Thr	Gly	Ala	Lys	Leu	Leu	Arg	Thr	Leu	Ser	Ser	Pro

**VERIFICATION SUMMARY**

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